

Appl. No. 09/779,012
Amdt. Dated June 16, 2006
Reply to Office Action dated April 17, 2006

REMARKS/ARGUMENTS

Claims 1, 3, 5-9, 11, and 13-22 remain in the application. Claims 2, 4, 10, and 12 have been canceled.

The first section of the Office Action accepts the drawing corrections and amendment to the specification submitted in the previous Amendment, but asserts that the amendments to the drawing and specification raise issues under 35 U.S.C. §112, second paragraph.

The second section of the Office Action rejects claims 1-3, 5-11, and 13-22 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The third section of the Office Action rejects claims 1-3, 9-11, 18, 19, and 22 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,657,957 B1 to Cheung *et al.*, "Cheung" hereinafter, in view of U.S. Patent No. 6,747,953 B1 to Qureshi *et al.*, "Qureshi" hereinafter, and U.S. Patent No. 6,745,352 to Cheng, "Cheng" hereinafter.

The fourth section of the Office Action rejects claims 5, 8, 13, and 16 under 35 U.S.C. §103(a) as being obvious over Cheung, Qureshi, and Cheng further in view of U.S. Patent No. 5,153,877 to Esaki *et al.*, "Esaki" hereinafter.

The fifth section of the Office Action rejects claims 6, 14, and 20 under 35 U.S.C. §103(a) as being obvious over Cheung and Qureshi further in view of U.S. Patent No. 6,510,219 to Wellard *et al.*, "Wellard" hereinafter.

The sixth section of the Office Action rejects claims 7 and 15 under 35 U.S.C. §103(a) as being obvious over Cheung and Qureshi further in view of U.S. Patent No. 5,390,188 to Dawson, "Dawson" hereinafter.

The seventh section of the Office Action rejects claim 21 under 35 U.S.C. §103(a) as being obvious over Cheung and Qureshi as applied to claim 9, and further in view of Esaki.

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The eighth section of the Office Action identifies claim 17 as allowable if rewritten in independent form including all limitations of the base claim and intervening claims.

The ninth section of the Office Action responds to the arguments presented in the previous Amendment and Response.

To expedite prosecution, all rejections will be treated as though applied to the claims as amended.

Applicants traverse all rejections and request reconsideration. Applicants also reserve the right to swear behind references where appropriate.

§112 Rejections

Applicants have amended the claims to remove the asserted indefiniteness. Specifically, Applicants have removed the references to second processors, incorporating the limitations of canceled Claim 2 into Claim 1, and the limitations of canceled Claim 10 into Claim 9.

Applicants assert that any indefiniteness has been removed.

§103 Rejections

Claims 1, 3, 9, 11, 18, 19 and 22 stand rejected over Cheung in view of Qureshi and further in view of Cheng. For convenience, Applicants will combine in this discussion both the rejections and the Examiner's Response to Arguments.

Applicants respectfully assert that the Patent Office applies references connected tenuously at best to the limitations of Applicants' claims. Applicants' system is directed in large part to VoIP packet loss in telecommunications systems, and the claims require, *inter alia*, collecting data on packet loss and evaluating the data according to an algorithm that evaluates the packet loss data for each interval as a function of that interval and a prior interval. If the results do not meet a criterion, the calls are blocked.

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The Patent Office has supplied several references in the present rejection. However, the references taken singly and in any combination do not disclose the limitations of the claims. Notably, *inter alia*, none of the references discloses evaluating packet loss data according to an algorithm that evaluates packet loss data for each interval as a function of that interval and a prior interval – a limitation present in all Applicants' claims.

Applicants maintain arguments previously submitted. However, because Cheng is asserted to supply the above-identified limitation, this response will address Cheng at length.

A. Cheung

Cheung describes a system for call admission based on whether predetermined network parameters are met. By the Patent Office's own admission, Cheung does not disclose Applicants' system of evaluating packet loss data for each interval as a function of that interval and a prior interval: "Neither Cheung '957 nor Qureshi '953 explicitly discloses wherein said algorithm computes each time interval as a function of the data for at least one prior interval." Office Action, p. 6, *II*. 15-16.

B. Qureshi

Applicants have previously noted that Qureshi does not supply the limitations lacking in Cheung as Qureshi uses a running average with overlapping time intervals to evaluate call quality. *See, e.g.*, Qureshi, column 18, line 28 through col. 19, line 9. Qureshi's col. 18, lines 66-7, refers to "average packet loss across all calls using the particular [packet/voice gateway] pair..." As has been noted, this is an average, and it may be kept dynamically (a running average), but it does not teach any time sequence of packet loss data for disjoint intervals, let alone a smoothing algorithm across such intervals.

In response, the Office action states:

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In response to the argument on Qureshi, Cheung already discloses the nonoverlapping time interval as set forth above, and the rejection is based upon the combined system of Cheung and Qureshi. Thus it is clear that the combined system of Cheung and Qureshi discloses the argued 1"nonoverlapping time intervals." Qureshi clearly discuss[es] "a means to maintain service in the face of transitory quality problems" in FIG. 7A and 7B, where RTP measurement on packet loss is performed, evaluating in accordance with acceptable thresholds, and blocking the calls if they are not acceptable as set forth in the above rejection.

Office Action, page 15, lines 3-9.

Qureshi may discuss transitory quality problems, but its system for handling them is quite different from Applicants'. Recognition that quality problems can be transitory does not suggest Applicants' particular approach to solving them. Far from suggesting an approach similar to Applicants', Qureshi uses its own formulae.

Further, the disclosure of nonoverlapping intervals, even if present, does not supply a motivation for introducing them into packet loss measurement and a smoothing algorithm for a quality-of-service monitor.

Qureshi takes a different approach from Applicants. Averaging such as Qureshi's may not adequately address transitory effects that can affect transmission quality. As the Application makes clear (see, e.g., specification page 4, ll. 22-24): "Instead of automatically increasing the average packet loss to a value which does not accurately reflect the very stable history of this connection, [in Applicants' system,] the occurrence of the packet loss spike will only affect the average percent packet loss to a minimal degree." Applicants' system specifically addresses smoothing that corrects beyond a system like Qureshi's; accordingly, it is difficult to find a motivation beyond hindsight for modifying Qureshi and/or Cheung to yield Applicants' claims.

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In any event, Qureshi nowhere supplies, discusses, discloses or suggests evaluating packet loss data according to an algorithm that evaluates packet loss data for each interval as a function of that interval and a prior interval, as required by Applicants' claims.

C. Cheng

The Office Action states:

In response to the argument on Cheng, Cheng discloses an algorithm [that] computes each time interval as a function of the data for that interval and at least one prior interval. (see col. 5, line 33-60, see col. 6, line 7-43; note that sliding window averaging algorithm utilizes each time/number of interval/iterations as a average data for past interval/iteration and the current interval/iteration to compute the average result/data).

Office Action, page 15, lines 10-14.

Applicants disagree, and reiterate that Cheng is concerned neither with collecting data on packet loss, nor with evaluating packet loss data according to an algorithm that evaluates packet loss data for each interval as a function of that interval and a prior interval. Accordingly, Cheng does not supply important limitations admittedly lacking in Cheung and Qureshi.

Cheng does not measure packet loss. Cheng iteratively processes received symbol sequences to generate data sequences. Note that at the completion of this step, Cheng has collected no data on packet loss. In fact, Cheng has collected no direct data on error rate: Cheng has collected data on the number of iterations it has taken to generate the correct sequence.

In Cheng's next step, it uses the number of iterations to **estimate** the error rate. Cheng states, "For example, an average number of iterations performed can be calculated using the most recently recorded number of iterations together with previous number (s) of iterations performed for previous data sequences, and the average can be used to estimate the error rate ..." Cheng, col. 5, lines 8-12.

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Cheng does not collect data on packet loss or, for that matter, any measure of error rate. Because Cheng does not collect "data on packet loss", it does not supply that limitation of Applicants' claims. *A fortiori*, it cannot be considered to teach Applicants' next step of evaluating that data. It has no error data to evaluate.

In fact, Cheng provides an estimate specifically in order to streamline its process by not having lengthy data collection and data evaluation steps, such as those specified by Applicants' claims. Cheng discloses a sliding-window algorithm. However, Cheng does not apply it to error data. It applies the algorithm to its own iteration counts.

Cheng considers its method to be an improvement (faster due to the shortcut of estimation) than methods that actually collect data about error: "In contrast, conventional error estimators may rely on observations of actual bit/frame errors ..." Cheng, col. 7, lines 4-5.

Further, Cheng aims to estimate error rate. Error rate is not synonymous with packet loss, although packet loss can cause or contribute to error rate. One can have errors with zero packet loss – so the conditions of Cheng can be fulfilled without addressing the packet-loss elements of Applicants' claims. But while other references refer to packet loss, no motivation is supplied for applying the teachings of Cheng to the specific problem of packet loss.

Thus, even in combination, Cheung, Qureshi, and Cheng do not disclose, teach, or suggest the limitations of Applicants' claims.

The Office Action further states:

[H]aving the system of Cheung '957 and then given the teaching of Qureshi '953, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Cheung '957 for the purpose of providing [an] algorithm which utilizes past interval/interaction [*sic*] and current interval/iteration when computing the result, as taught by Qureshi '953, since Qureshi '953 states the advantages/benefits at col. 2, lines 54 to col. 3, lines 12 that it would provide a mechanism for determining the congestion and level of call blocking needed to provide a predetermined quality of service for calls.

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The motivation being that by taking the corrective action of blocking the new/future calls according to the packet loss data, it can reduce or eliminate data loss.

Office Action, page 6, lines 6-14.

Applicants disagree that Qureshi provides a motivation to modify Cheung to create Applicants' invention. The referenced text in Qureshi merely sets forth general advantages of quality improvement.

Further, the Office Action appears to use terms "interval" and "iteration" interchangeably. Cheng deals with iterations, not intervals, and its mathematical manipulations concern iterations, not intervals. Estimating methods applied to iterations do not necessarily transfer and, moreover, do not suggest or lead one to consider applying them to intervals, especially when they are used for a different purpose (e.g., estimation in order to avoid direct measurement *versus* evaluation in order to determine quality of service and possible call blocking).

Because Cheung, Qureshi, and Cheng do not disclose the limitations of Applicants' claims even in combination, and because none provides a motivation for modifying their teachings (let alone to combine and modify their teachings) to yield Applicants' invention, Applicants assert that their invention as claimed is not obvious over Cheung in view of Qureshi and further in view of Cheng.

D. Motivation

Applicants emphasize that general desiderata including increasing network reliability or decreasing errors do not suffice to provide a motivation for combining or modifying references.

The Office Action states:

In view of this, having the combined system of Cheung '957 and Qureshi '953, and then given the teaching of Cheng '352, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Cheung '957 and Qureshi '953, for the purpose of providing algorithm which utilizes past

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interval/interaction [*sic*] and current interval/iteration when computing the result, as taught by Cheng '352, since Cheng '352 states the advantages/benefits at col. 1, lines 25-45 that it would provide accurate and reliable error rate estimation which adapts to channel condition changes. The motivation being that by estimating the error rate accurately, it can increase the capability to detect and correct the errors, thereby increasing the network reliability and performances.

Office Action, page 7, lines 3-11.

Applicants disagree. Applicants reiterate that while Cheng is specifically directed toward **estimating** error, the present Application as claimed is directed towards accurate **measurement** of error as more reliable than estimation.

E. Other References

Applicants have previously discussed Esaki, Wellard, and Dawson. Applicants reiterate their arguments and incorporate them herein by reference.

CONCLUSION

Applicants submit that the invention as claimed is not disclosed, taught, or suggested by the cited art, singly or in any combination. Therefore, it is submitted that all pending claims are allowable over the art of record and it is respectfully requested that the application be passed to allowance and issue.

Respectfully submitted,

Francis Montgomery
Francis G. Montgomery
Attorney for Applicant(s)
Reg. No. 41,202
732-321-3130